IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Attorney Docket No. 16375US02)

In the Application of:	**Jack Dunnous, et al.**
U.S. Serial No.:	**10/624,810**
Filed:	**July 22, 2003**
For:	**METHOD AND APPARATUS FOR PRODUCING MULTI-COLOR CONCRETE**
Examiner:	**David P. Turocy**
Group Art Unit:	**1762**

DECLARATION OF INVENTORS UNDER 37 C.F.R. § 1.131

We, the undersigned inventors, hereby declare as follows:

1. The undersigned William J. Yocum (Bill Yocum) is currently employed at Rockwood Pigments, N.A., and his title is Technical Marketing Manager. He is a co-inventor of U.S. Patent Application No. 10/624,810 (the "present application").

2. The undersigned Jack Dunnous is currently retired. He is a co-inventor of the present application.

3. All statements made herein of our own knowledge are true and all statements made upon information and belief are believed to be true.

4. We have been made aware of U.S. Patent Publication No. US 2003/0197310 A1 (the "Bailey publication").

5. On information and belief, the Bailey publication is the publication of U.S. Patent Application No. 10/127,861 (the "Bailey application"), which was filed on April 22, 2002, and which has a publication date of October 23, 2003.

6. On information and belief, the Bailey application has been assigned to Anchor Wall Systems, Inc. of Minnetonka, Minnesota ("Anchor"), and that assignment

was recorded in the Patent Office at Reel/Frame: 013007/0668 on June 18, 2002.

7. Prior to April 22, 2002, Anchor showed inventor Bill Yocum Anchor's equipment for producing multi-color concrete. The equipment discharged a wet concrete mix from a vessel and sprayed a first spray color dispersion comprising a pigment dispersed in water onto the wet concrete mix discharging from the vessel to form a pattern of applied color in the wet concrete mix. The concrete was allowed to cure, which is known because inventor Yocum saw samples of the output of the machine that were cured concrete. The pigment dispersion Anchor was using in its equipment comprised a pigment dispersed in water, not a spray color dispersion according to the present invention.

8. Exhibit A, attached hereto, is a Process Disclosure form which was prepared by inventor Dunnous before April 22, 2002, based on its typewritten date (redacted), and has a second date (redacted) preceding April 22, 2002 , on a "Received" stamp impression indicating that it was received by Caesar Rivise, Bernstein, Cohen & Pokotilow, Ltd. on that date. All dates have been redacted from the attached papers in conjunction with filing this Declaration because we have been advised that removal of dates preceding April 22, 2002 is appropriate in accordance with §715.07 (II) of the Manual of Patent Examining Procedure. The redacted dates are all prior to April 22, 2002.

9. Prior to April 22, 2002, Anchor attempted to use its equipment to practice a method of producing multi-color concrete, but failed because the spray color dispersion Anchor was attempting to use did not adhere properly to concrete. This failure is documented by Exhibit A, which states under the heading "Spray Color Suspension Requirements" on page 2 that "Standard pigment suspensions.... Do not adhere properly to the concrete and it was found that clumps of color would detach itself from the split surface of the concrete block when subjected to a pressure wash."

10. The Anchor equipment applies the color dispersion to wet concrete, which is difficult to coat successfully with a water-based color dispersion because of the water content of the concrete. Both inventor Yocum and Anchor's representatives concluded that the pigment dispersion they were then using did not work.

11. Prior to April 22, 2002, having seen the Anchor equipment and method fail to provide acceptable multi-color concrete due to failure of the color dispersion to adhere, we conceived of an improved method to produce multi-colored concrete, using equipment such as Anchor's, by modifying the color dispersion to add a polymer binding agent to the spray dispersion to bind to the cured

concrete and hold the pigment particles together. Our conception of this modified color dispersion before April 22, 2002, is documented in Exhibit A.

12. Our conception prior to April 22, 2002, of color dispersions comprising a pigment and a polymer binding agent dispersed in water in accordance with the present invention is shown, for example, at page 3 of Exhibit A, which states, "This situation is corrected with the addition of a polymer to the spray mix which has the property, when dried, to bind to the cured concrete and holding [sic] together the pigment particles."

13. Our conception prior to April 22, 2002 of a method for producing multi-color concrete in accordance with the present invention is also shown in Exhibit A. For example, Exhibit A describes a method for producing multi-color concrete wherein the equipment discharges a wet concrete mix from a vessel (Exhibit A, paragraph bridging pages 1 and 2, "the discharge region of the concrete mixer") and sprays a first spray color dispersion onto the wet concrete mix discharging from the vessel (Exhibit A, paragraph bridging pages 1 and 2, "nozzles, set to spray a pigment suspension stream under pressure, are located within the discharge region of the concrete mixer, pointing at the exiting concrete mix. When the discharge of the mixer starts, chosen nozzle(s) begin, at the same time, spraying the liquid color into the concrete mix while emerging from the mixer...") to form a pattern of applied color in the wet concrete mix (Exhibit A, paragraph bridging pages 1 and 2, "adding a highlight to the base color already in the mix;" page 2, first paragraph following the first subhead, "The highlighting pattern can be shaped and controlled....") which forms a resultant structure of cured concrete (Exhibit A, page 3, "This situation is corrected with the addition of a polymer to the spray mix which has the property, when dried, to bind to the cured concrete and holding [sic] together the pigment particles").

14. Exhibit A further shows our conception that the spraying could be carried out using at least one nozzle to spray the first spray color dispersion under pressure (Exhibit A, paragraph bridging pages 1 and 2, "nozzles, set to spray a pigment suspension stream under pressure, are located within the discharge region of the concrete mixer, pointing at the exiting concrete mix").

15. Exhibit A further shows our conception that a second spray color dispersion could be provided and sprayed onto the wet concrete mix, and that this could be accomplished using a plurality of nozzles wherein at least one nozzle sprays a first color dispersion and at least one nozzle sprays a second color dispersion (Exhibit A, paragraph bridging pages 1 and 2, "One or two extra spray nozzle(s) may also be located over the conveyor belt adding another color highlight to the mix").

16. Exhibit A further shows our conception that the color pattern could be controlled using timers that control the spraying (Exhibit A, page 2, "The highlighting pattern can be shaped and controlled through timers controlling the nozzle output").

17. Exhibit A further shows our conception that the color pattern could be controlled by spraying in pulses such that sprays of various lengths of time produce a pattern (Exhibit A, page 2, "An ON/OFF spray pulses [sic] of various lengths will produce a certain desired pattern").

18. Exhibit A further shows our conception that spraying could be carried out using nozzles having flow patterns including a solid cone, a hollow cone and a flat spray (Exhibit A, page 2, "Various nozzles may be used to produce, among others, a solid cone, a hollow cone or flat spray").

19. Exhibit A further shows our conception that spraying could be carried out using the form of a stream (Exhibit A, page 2, "The pattern of the color deposited on the concrete while traveling on the belt is likewise controlled by the shape of the liquid stream it receives through intermittent timing, solid or sprayed pattern").

20. Exhibit A further shows our conception that spraying could be carried out by varying the distance between the at least one nozzle and the wet concrete mix (Exhibit A, page 2, "varyng the distance between the nozzles and the flowing concrete can also affect the shape the highlight").

21. Exhibit A further shows our conception that when producing multi-color concrete according to the methods of the present invention that the resultant polymer structure is insoluble in water and remains as part of the cured concrete, thereby preserving the integrity of the pattern of applied color highlight (Exhibit A, page 3, "This situation is corrected with the addition of a polymer to the spray mix which has the property, when dried, to bind to the cured concrete and holding [sic] together the pigment particles. The binding must be insoluble in water after drying out.").

22. Our conception of at least some embodiments of suitable polymer binding agents for use with the present invention is also shown in Exhibit A (Exhibit A, page 3, "Example of polymers and binders that would accomplish the above are: Acrylic Emulsions, Water soluble Acrylic Copolymers, Water soluble Vinyl Acetate").

23. Before April 22, 2002, we developed and made spray color dispersions comprising pigment and a polymer binding agent dispersed in water for use in methods as described in the present patent application. This work is documented, for example, in Exhibits B through D attached hereto (dates redacted). The spray color dispersions we developed became known as the SPR 9000 color series.

24. Specific embodiments of the spray color dispersions we developed contained pigment in amounts of about 2% to about 60% by weight of the spray color dispersion, and binding agent in amounts of about 1% to about 60% by weight of the spray color dispersion. For example, Exhibit D shows that spray color dispersions were made with 50% by weight of pigment ("Q" and "J") and 15% by weight of a polymer binding agent ("J-1925" – a styrenated acrylic polymer) in a water dispersion as claimed in the present application.

25. Prior to April 22, 2002, we sent samples of the spray color dispersions we developed to Anchor for testing in spray applications. Exhibit B (date redacted) is a letter from inventor Bill Yocum to Paul Bailey at Anchor, sent prior to April 22, providing evidence of testing.

26. We sent the sample spray color dispersions to Anchor for testing in its spray equipment for coloring concrete because we conceived at that time that the formulations we developed would work in Anchor's equipment to effectively color concrete.

27. After sending the original spray color dispersions to Anchor for testing, but prior to April 22, 2002, inventor Yocum visited Anchor and saw samples of the colored concrete that resulted from the testing. Both Anchor and inventor Yocum regarded the test results as being successful. We therefore reduced the present invention to practice before April 22, 2002, by successfully practicing the invention to make multi-color concrete.

28. Additionally, after testing of the spray color dispersions developed by the present inventors, Anchor became a steady customer of Hamburger Color Co. in purchasing SPR 9000 spray color dispersions.

29. For example, Invoice # 407889 (date redacted), attached hereto as Exhibit C, is dated prior to April 22, 2002.

30. Invoice # 407889 is evidence that Hamburger sold to Anchor 500 pounds of SPR 9000 Q spray, 500 pounds of SPR 9001 J Spray, 60 pounds of SPR 9002

Herbert Tan spray, and 60 pounds of SPR 9003 Putty spray before April 22, 2002.

31. The second page of the attached invoice shows that the SPR 9000 Q spray sold to Anchor before April 22, 2002, was batch number 11121, the SPR 9001 J Spray was batch number 11122, and both the SPR 9002 Herbert Tan spray and the SPR 9003 Putty spray were made in the lab.

32. The batch sheets for the SPR 9000 and SPR 9001 sprays sold to Anchor per Invoice #407899, attached hereto as Exhibit D, show that these particular batches were made before April 22, 2002.

33. The batch sheets further show that the compositions of the SPR 9000 and SPR 9001 sprays sold to Anchor before April 22, 2002 contained an iron oxide pigment ("Q") and a polymer binding agent ("J-1925" – a styrenated acrylic polymer) in a water dispersion as claimed in the present application.

34. Paragraph 36 of the Bailey publication states that "In the preferred embodiment, the pigment is SPR 9000 series color available from Hamburger Color Company of King of Prussia, Pa."

35. As discussed above, the SPR 9000 series dispersions disclosed in the Bailey publication is a commercial embodiment of the spray color dispersions claimed in the present application.

36. The present inventors thus conceived and reduced to practice the methods of producing multi-color concrete using spray color dispersions as disclosed in the present application prior to April 22, 2002, when Anchor filed the Bailey application.

We, the undersigned, further acknowledge that willful false statements and the like made in this declaration are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001 and may jeopardize the validity of the present application or any patent issuing thereon.

Jack Dunnous 9-20-2005

Jack Dunnous Date

9/24/05

William J. Yocum Date

Exhibit A

PROCESS DISCLOSURE

SPRAYING SYSTEM FOR THE PRODUCTION OF MULTI-COLOR CONCRETE MASONRY UNITS

Documented by: Jack Dunnous

HAMBURGER COLOR COMPANY
555 E. Church Road
King of Prussia, PA 19406

Redacted

Multi-color concrete masonry are units where the concrete contains a base color and another color is superimposed over the base with partial blending so that a random pattern is achieved to simulate the variegation of various natural stones and marbles. In certain cases 2 colors are superimposed over the base for a more random look. This effect is generally achieved by:

1- Preparing a sequence of small batches of differently colored concrete mix and subsequetly, while using a special technique, partially intermix the batches in a special hopper. For a 3 color range block, for example, 3 batches of 1/3 size each are fed sequentially.
2- Another method is the addition of a second color into the mixer, which already has a concrete batch with a base color and allow a short mix time thereafter so that the second color is not thoroughly mixed, developing a random pattern.
3- Other methods, which are variations of the above, are also practiced.

The above methods have certain disadvantages. The first system requires small, one half or one third, mix batches which requires more batches to be made thus slowing down production and becomes costly. The second method needs a particular skill to know when to introduce the second color, where in the mixer the color is injected and how long the short mix should be In both cases the results are dependent on the operator skill and are not reliably replicated

The object of this invention is a spraying method that would require full batches (cost effective) and its operation can be reliably replicated

SYSTEM DESCRIPTION:

One to three nozzles, set to spray a pigment suspension stream under pressure, are located within the discharge region of the concrete mixer, pointing at the exiting concrete mix When the discharge of the mixer starts, chosen nozzle(s) begin, at the same time, spraying the liquid color into the concrete mix while emerging from the mixer, adding a

highlight to the base color already in the mix. The exiting concrete mix is carried via a conveyer belt to the hopper feeding the concrete forming equipment. One or two extra spray nozzle(s) may also be located over the conveyor belt adding another color highlight to the mix. Since no further mixing occurs, the concrete is randomly tinted.

PATTERN CONTROL:

The highlighting pattern can be shaped and controlled through timers controlling the nozzle output. An ON/OFF spray pulses of various lengths will produce a certain desired pattern that can be easily replicated

The highlight can also be modified by the pattern of the spray leaving the nozzle. Various nozzles may be used to produce, among others, a solid cone, a hollow cone or flat spray.

Varying the distance between the nozzles and the flowing concrete can also affect the shape the highlight.

The pattern of the color deposited on the concrete while travelling on the belt is likewise controlled by the shape of the liquid stream it receives through intermittent timing, solid or sprayed pattern.

The combination of any of the above setups will produce a large number of color spreads that can be readily duplicated, since it is produced by a definite controlled setting of the variables involved.

CONCLUSION:

As it is shown above the advantages of this process are:

Full mixer batches are used that will not slow down the production as partial batches would.
Less complicated and lower cost of reproduction equipment, in certain cases.
The highlight color pattern is easily replicated through the use of settable process variables.

SPRAY COLOR SUSPENSION REQUIREMENTS:

Standard pigment suspensions were used with good original results. However, since there is no mixing, the pigment do not adhere properly to the concrete and it was found that clumps of color would detach itself from the split surface of the concrete block when subjected to a pressure wash

This situation is corrected with the addition of a polymer to the spray mix which has the property, when dried, to bind to the cured concrete and holding together the pigment particles. The binding agent must be insoluble in water after drying out Example of p olymers and binders that would accomplish the above are:

Acrylic Emulsions
Water soluble Acrylic Copolymers
Water soluble Vinyl Acetate

Jack Dunnous

Exhibit B

Hamburger
color company

Redacted

Mr. Paul Bailey
Anchor/Demaco
4550 Clark Road
Sarasota, FL 34233

Dear Paul:

The balance owed on the dispenser in Sarasota is $12,186 or 243,700 pounds of color with the current surcharge. The easiest way to put liquid color into the Edgewater plant will be to extend the surcharge agreement. We will finance the entire amount of the new dispenser over a four-year period. The total cost of the new dispenser after adding in the outstanding balance on the original machine will be $43,500 or 725,000 pounds at $.06 per pound.

I sent you four pails of color for use in the spray application. This is one of several polymers I am looking at for better adhesion to the cement. They are more like a paste than I would like, but should be sprayable. If they are to heavy to spray let me know and I will remake them at a lower viscosity. After you run them, please let me know what you think of the results. I will be making at least one more set of pails with a different polymer system for evaluation.

The brick/paver you gave me looks extremely interesting. I would like to run this type product again with a sand/clay combination. I think this will eliminate some of the problems with the balling of the clay in the mixer. I will also be contacting several different clay suppliers to look for a product that is more compatible with cement.

I really enjoyed coming to Florida and meeting with both you and Scott. It was very helpful to me to learn more about what you are doing.

Sincerely,

Bill Yocum

555 E. Church Road King of Prussia, PA 19406 • (610) 279-6450 • (610) 279-4931 FAX

Exhibit C

NOTE: Redacted items are dates prior to April 22, 2002

INVOICE

Hamburger color company
555 E. CHURCH ROAD
KING OF PRUSSIA, PA 19406
(610) 278-6450
FAX (610) 278-1831

INVOICE DATE Redacted
INVOICE NO. 407389
SHIP DATE Redacted
CUSTOMER NO. ANMN02

SOLD TO:
ANCHOR BLOCK - BROOKLYN PARK
8201 BROOKLYN BLVD.
BROOKLYN PARK, MN 55445

SHIPPED TO:
ANCHOR BLOCK - MN
8201 BROOKLYN BLVD.
BROOKLYN PARK, MN 55445

F.O.B. POINT	CUSTOMER ORDER NO.	SHIP VIA	TERMS	SALESPERSON	OUR ORDER NO.
COLLECT	VERBAL PAUL	CCX	NET 30 DAYS		009491

ITEM NO./ SERIAL NO.	UNIT	QUANTITY ORDERED	QUANTITY BACKORDERED	QUANTITY SHIPPED	UNIT PRICE	EXTENDED PRICE
SPR-9000 Q SPRAY 1 DRUM @ 500 LBS	LBS	500.00	0.00	500.00	0.860	430.00
SPR-9001 J SPRAY 1 DRUM @ 500 LBS	LBS	500.00	0.00	500.00	0.860	430.00
R-9002 RBERT TAN SPRAY 2 BUCKETS @ 30 LBS EACH	LBS	60.00	0.00	60.00	0.860	51.60
SPR-9003 PUTTY SPRAY 2 BUCKETS @ 30 LBS EACH	LBS	60.00	0.00	60.00	0.860	51.60
PACKING CHARGE FOR BUCKETS	EACH	4.00	0.00	4.00	15.000	60.00

Sales Total	1023.20
Trade Discount	0.00
Freight	0.00
Misc. Charges	0.00
Tax Total	0.00
INVOICE TOTAL	1023.20

NOTE: Redacted items are dates prior to April 22, 2002

Invoice# 407889
Date Redacted

SHIPPED: ANCHOR BLOCK
8201 BROOKLYN BLVD.
BROOKLYN PARK, MN 55445

COLOR	QUANTITY	BATCH IDENTIFICATION
SPR-9000 Q SPRAY	1 DRUM (500 LBS)	1-11-2-1
SPR-9001 J SPRAY	1 DRUM (500 LBS)	1 11 2 2.
SPR-9002 HERBERT TAN SPRAY	2 BUCKETS (60 LBS)	Lab
SPR-9003 PUTTY	2 BUCKETS (60 LBS)	Lab

Exhibit D

NOTE: Redacted items are
dates prior to April 22, 2002

Batch #: 11121

CUSTOMER: Anchor

COLOR: Q Spray

Height:

Started: Redacted

Finished: Redacted

Drum size: 55 gallon

Number of Drums: 1 @ 500

PREBLEND WEIGHTS

Drums: 1

55 gallon

Total Pounds each drum 500

Confirmation Field

WILL SHOW ERRORS

			%		POUNDS
COLOR 1	Q		50		250.00
COLOR 2	J 1925		15		75.00
COLOR 3	Susp		1.5		7.50
COLOR 4	Water		33.40		167.00
COLOR 5	PI-35		.10		0.50

TOTAL 100

MUST EQUAL 100

NOTES: Add order:
Water + Suspengel mix til dissolved
Defoamer
Paste
Joncry to top off drum. Don't mix. Hand mash after adding Joncryl.

NOTE: Redacted items are dates prior to April 22, 2002

Batch #: 11122

CUSTOMER: Anchor

COLOR: J Spray

Height:

Started: Redacted

Finished: Redacted

Drum Size: 55 gallon

Number of Drums: 1 @ 500

PREBLEND WEIGHTS

Drums: 1

55 gallon

Total Pounds each drum 500

Confirmation Field

WILL CHW ERRORS

					POUNDS
COLOR 1	J		50		250.00
COLOR 2	J 1925		15.0		75.00
COLOR 3	Susp		1 5		7.50
COLOR 4	Water		33 40		167.00
COLOR 5	PI-35		.10		0.50

TOTAL 100

MUST EQUAL 100

NOTES: Add order:
Water + Suspengel mix til dissolved
Defoamer
Paste
Joncry to top off drum. Don't mix. Hand mash after adding Joncryl.